

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application.

Listing of the Claims:

1. (Withdrawn) A cable comprising:
 - a) a first connector having a print controller ready data interface for receiving print controller ready data (PCRD);
 - b) a second connector having a print engine ready data interface for providing print engine ready data (PERD); and
 - c) a printer controller for receiving the print controller ready data and based thereon for generating print engine ready data.
2. (Withdrawn) The cable of claim 1 further comprising:
 - a) a cable format conversion mechanism for converting signals in a first format into corresponding signals in a second format.
3. (Withdrawn) The cable of claim 1 further comprising:

a multiple target device support mechanism for supporting at least two different types of target devices.
4. (Withdrawn) The cable of claim 3 wherein the multiple target device support mechanism further comprises:
 - a) a laser printer interface for providing an interface to laser printers;
 - b) non-impact printer interface for providing an interface to non-impact ink printers; and
 - c) a common formatting circuit coupled to the laser printer interface and the non-impact printer interface for providing functions to the laser printer interface and the non-impact printer interface.

5. (Withdrawn) The cable of claim 1 wherein the print engine ready data interface includes:

- a) a first signal for sending commands from the printer controller to the print engine;
- b) a second signal for receiving status from the print engine in response to commands sent by the printer controller; and
- c) a third signal for transferring data from the printer controller to the print engine.

6. (Withdrawn) The cable of claim 5 wherein the print engine ready data interface further includes:

- a) a first user interface signal for sending displayable data to the print engine; and
- b) a second user interface signal for receiving user input from the print engine.

7. (Withdrawn) The cable of claim 1 wherein the print controller ready data interface includes one of an industry standard computer port interface, a parallel port interface, a serial port interface, IEEE 1284 parallel port interface, a USB serial port interface, and an Ethernet interface.

8. (Withdrawn) The cable of claim 1 wherein the print engine ready data (PERD) interface includes one of a parallel port interface, a serial port interface, an IEEE 1284 parallel port interface, a USB serial port interface, an Ethernet interface, and a custom interface.

9. (Previously Presented) The single continuous cable of claim 38 wherein the printer controller comprises:

- a processor for executing computer programs coupled to the volatile memory; and
- a dynamic loading program for causing the processor to automatically manage download of the printer controller program from a source to the volatile memory.

10. (Previously Presented) The single continuous cable of claim 9 wherein the dynamic loading program determines whether a current version of the printer controller program resident in the volatile memory is not valid, and selectively downloads from a host computer the printer controller program to the volatile memory of the printer controller if the current version of the printer controller program is not valid.

11. (Canceled)

12. (Previously Presented) The single continuous cable of claim 10 wherein the printer controller program, when executing on the processor, receives the print controller ready data and based thereon generates the print engine ready data for controlling a print engine.

13. (Previously Presented) The single continuous cable of claim 9 further comprising:
an integrity check module, when executing on the processor, for performing an integrity check on the printer controller program to determine whether the printer controller program is corrupted and re-installing the printer controller program when the printer controller program is corrupted.

14. (Previously Presented) The single continuous cable of claim 9 wherein the printer controller is embodied in one of a single integrated circuit and an application specific integrated circuit (ASIC).

15.-20. (Canceled)

21. (Withdrawn) An office machine comprising:

- a) a print engine for receiving print engine ready data (PERD) and responsive thereto for generating a hard copy of the print engine ready data, the print engine for coupling to a printer controller and for communicating data therewith, wherein the printer controller is disposed external to the office machine; and
- b) a port having a print engine ready data interface for receiving the print engine ready data from the printer controller.

22. (Withdrawn) The office machine of claim 21 wherein the print engine ready data interface includes:

- a) a first signal for sending commands from the printer controller to the print engine;
- b) a second signal for receiving status from the print engine in response to commands sent by the printer controller; and
- c) a third signal for transferring data from the printer controller to the print engine.

23. (Withdrawn) The office machine of claim 22 wherein the print engine ready data interface further includes:

- a) a first user interface signal for sending displayable data to the print engine; and
- b) a second user interface signal for receiving user input from the print engine.

24. (Withdrawn) A method of replacing a printer controller in a system that includes a host, a printer without a printer controller, and a first printer cable that connects the host to the printer; wherein the first printer cable includes a first printer controller that is external to the printer, the method comprising:

dis-connecting the first cable from the host and the printer;

connecting the host to the printer with a second cable that includes a second printer controller; and

automatically determining whether the second printer controller is compatible with a print engine disposed in the printer and printing software disposed in the host.

25. (Withdrawn) The method of claim 24

wherein a user performs the step of disconnecting the first cable from the host and the printer; and

wherein the user performs the step of connecting the host to the printer with a second cable that includes the second printer controller.

26. (Withdrawn) The method of claim 24 wherein the first printer controller is defective; and

wherein the first defective printer controller is replaced by the second operative printer controller by replacing the first printer cable with the second printer cable.

27. (Withdrawn) The method of claim 26 wherein a user replaces the first defective printer controller with the second operative printer controller by replacing the first printer cable with the second printer cable.

28. (Withdrawn) The method of claim 24 wherein the first printer controller is out-dated; and

wherein the first out-dated printer controller is upgraded by the second printer controller by replacing the first printer cable with the second printer cable.

29. (Withdrawn) The method of claim 28 wherein the user upgrades the first out-dated printer controller with the second printer controller by replacing the first printer cable with the second printer cable.

30. (Currently Amended) A single continuous cable comprising:

a first connector having a print controller ready data interface for receiving print controller ready data;

a second connector having a print engine ready data interface for providing print engine ready data; and

a printer controller disposed entirely within the single continuous cable, the printer controller connected to the first connector and the second connector internal to the cable, the printer controller configured to receive the print controller ready data from the print controller ready data interface and to generate print engine ready data for transmission to the print engine ready data interface.

31. (Previously Presented) The single continuous cable of claim 30 further comprising:

a cable format conversion mechanism for converting signals in a first format into corresponding signals in a second format, the cable format conversion mechanism within the single continuous cable.

32. (Previously Presented) The single continuous cable of claim 30 further comprising:

a multiple target device support mechanism for supporting at least two different types of target devices, the multiple target device support mechanism within the single continuous cable.

33. (Previously Presented) The single continuous cable of claim 32 wherein the multiple target device support mechanism further comprises:

a laser printer interface for providing an interface to a laser printer;

a non-impact printer interface for providing an interface to a non-impact ink printer; and

a common formatting circuit coupled to the laser printer interface and the non-impact printer interface for providing functions to the laser printer interface and the non-impact printer interface.

34. (Canceled)

35. (Canceled)

36. (Previously Presented) The single continuous cable of claim 30 wherein the print controller ready data interface comprises one of an industry standard computer port interface, a parallel port interface, a serial port interface, IEEE 1284 parallel port interface, a USB serial port interface, and an Ethernet interface.

37. (Previously Presented) The single continuous cable of claim 30 wherein the print engine ready data interface comprises one of a parallel port interface, a serial port

interface, an IEEE 1284 parallel port interface, a USB serial port interface, an Ethernet interface, and a custom interface.

38. (Previously Presented) The single continuous cable of claim 30 wherein the printer controller comprises a printer controller program for generating the print engine ready data, the printer controller program stored in a memory consisting of volatile memory.

39. (Previously Presented) The single continuous cable of claim 30 wherein the printer controller is configured to send commands to a print engine, to receive a status signal from the print engine in response to the commands sent, and to transfer the print engine read data to the print engine after receiving the status signal.

40. (Currently Amended) A single continuous cable comprising:
means for interfacing with a host computer to receive print controller ready data;
means disposed entirely within the single continuous cable for generating print engine ready data from the print controller ready data; and
means for providing the print engine ready data to a printing device.

41. (Currently Amended) The cable of claim 40 further comprising:
means for storing in a volatile memory a printer controller program that generates the print engine ready data from the print controller ready data; and
means for automatically managing download of the printer controller program to a memory consisting of the volatile memory.

42. (Previously Presented) The cable of claim 41 wherein the means for automatically managing download determines whether a current version of the printer controller program resident in the volatile memory is not valid or non-existent, and downloads the printer controller program to the volatile memory of the printer controller if the current version of the printer controller program is not valid or non-existent.